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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/803,895

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EXAMINER

WANG, CLAIRE X

ART UNIT

PAPER NUMBER

2624

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/803,895	Applicant(s) OOSAWA, AKIRA	
	Examiner CLAIRE WANG	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/2/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7 and 9-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Doi et al. (US 2002/0172403 hereinafter “Doi”).

As to claim 1, Doi teaches an image judging apparatus (automated computerized scheme for distinction between benign and malignant solitary pulmonary nodules on the chest images; Title), comprising a candidate region extracting means for extracting candidate regions for predetermined patterns from medical image data (obtaining digital image with nodule location identified; S10 Fig. 10); an inner/outer outline image extracting means for extracting inner/outer outline images, which are in the vicinity of the outline of the candidate regions extracted by the candidate region extracting means (Figs. 5a-5f shows generated inside and outside regions of the segmented nodules for malignant and benign nodules; Paragraph [0044]); and a pattern judging means for judging the type of pattern within the candidate regions, by employing characteristic amounts of the inner/outer outline image extracted by the inner/outer outline image extracting means (Figs. 6a-6b are graphs illustrating gray-level histograms for inside

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and outside regions of the segmented nodule on the background trend and density corrected image; [0045]).

As to claim 2, Doi teaches wherein the type of pattern is one of a normal pattern, an abnormal pattern, a benign abnormal pattern, and a malignant abnormal pattern (applying extracted features to at least one classifier; S70 Fig. 10).

As to claim 3, Doi teaches wherein the type of pattern is a type of pattern is classified according to a sign (malignant nodules generally have a lower peak and wider width in the histogram; [0066]).

As to claim 4, Doi teaches a density pattern extracting means, for extracting density patterns, which are present within unit pixel groups that constitute the inner/outer outline images, extracted by the inner/outer outline image extracting means; a presence frequency calculating means, for judging which of the density patterns the unit pixel groups of the inner/outer outline images are similar to, and calculating presence frequencies by counting the presence of the similar density patterns within the inner/outer outline image (Figs. 6a-6b are graphs illustrating gray-level histograms for inside and outside regions of the segmented nodule on the background trend and density corrected image; [0045]); and a classifying means, for classifying the inner/outer outline images according to the type of pattern, based on the presence frequencies of the density patterns; wherein the pattern judging means judges to which classification the candidate region belongs, from among the classifications of the inner/outer outline images, which were classified according to the type of pattern by the classifying means, by employing the presence frequencies of the density patterns therein, derived by the presence frequency calculating means, as characteristic amounts (malignant nodules generally have a lower peak and wider width in the histogram; [0066]).

As to claim 5, Doi teaches wherein the inner/outer outline image extracting means divides the inner/outer outline image into two or more regions comprising an outline edge, an outline interior and an outline exterior (Fig. 5a is an example of an image with inside and outside regions, it is clearly shown that the image is divided into at least 3 regions which include the are outside of the outer outline, the are between the outer outline and inner outline and the area enclosed by the inner outline); and the pattern judging means judges the type of pattern based on the characteristic amount of at least one of the regions (malignant nodules generally have a lower peak and wider width in the histogram; [0066]).

As to claim 6, it is the same as claim 4. Please see above for detail analysis.

As to claim 10, Doi teaches wherein the inner/outer outline region includes inward vicinity and outward vicinity of the outline of the candidate regions (Fig. 5a is an example of an image with inside and outside regions, it is clearly shown that the image is divided into at least 3 regions which include the are outside of the outer outline, the are between the outer outline and inner outline and the area enclosed by the inner outline).

As to claim 11, Doi teaches wherein the inner/outer outline region is within a range from edge of the outline of the candidate regions (Fig. 5a is an example of an image with inside and outside regions, it is clearly shown that the image is divided into at least 3 regions which include the are outside of the outer outline, the are between the outer outline and inner outline and the area enclosed by the inner outline).

As to claim 16, Doi teaches wherein the inner/outer outline images are divided into outline edge regions, outline interior regions, and outline exterior regions (Fig. 5a is an example of an image with inside and outside regions, it is clearly shown that the image is divided into at least 3 regions which include the are outside of the outer outline, the are between the outer outline and inner outline and the area enclosed by the inner outline).

As to claims 7, 12-13 and 17 they are the method claim of claim 1, thus it is analyzed in the same manner as claims 1, 10-11 and 16. Please see claims 1, 10-11 and 16 for detail analysis.

As to claims 9, 14-15 and 18 they are the computer-readable medium claim of claims 1, 10-11 and 16. Therefore claims 9, 14-15 and 18 are analyzed in the same way as claims 1, 10-11 and 16. Please see above for detail analysis.

As to claim 19, Doi teaches wherein the type of patten is only an abnormal pattern (Figs. 5a-5f shows generated inside and outside regions of the segmented nodules for malignant and benign nodules; Paragraph [0044]).

As to claim 20, Doi teaches wherein an abnormal pattern is characterized that it represents symptoms of at least one of tumors, tumorous boils and cancer (lung cancer nodule detection; Col. 12, lines 15-16).

Contact Information

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CLAIRE WANG whose telephone number is (571)270-1051. The examiner can normally be reached on Mid-day flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Claire Wang
06/13/2008
/Brian Q Le/
Primary Examiner, Art Unit 2624